

REMARKS

This application has been carefully reviewed in light of the final Office Action dated April 6, 2007. Claims 1, 10 to 19, 23, 32 to 41 and 45 are pending in the application, with Claims 3 to 9 and 25 to 31 having been cancelled. Claims 1, 23 and 45, all of which are independent, have been amended. Reconsideration and further examination are respectfully requested.

In the Office Action, Claims 1, 3 to 19, 23, 25 to 41 and 45 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,884,249 (Namba) in view of U.S. Patent No. 6,292,767 (Jackson). Claims 3 to 9 and 25 to 31 have been cancelled without prejudice or disclaimer of the subject matter and without conceding the correctness of their rejection. Reconsideration and withdrawal of the rejection of the remaining claims are respectfully requested.

Claim 1

Claim 1 as amended is directed to an information processing apparatus. The apparatus comprises a plurality of input means for inputting different types of information, conversion means for converting information input from any of the plurality of input means into a word representing the information, and storage means for storing a plurality of words converted by the conversion means with an input time thereof. The apparatus also comprises sorting means for sorting the plurality of words stored in the storage means in an order of the input time, and a knowledge base for storing knowledge of each concept which includes a word representing the concept, a concept type of the concept, a concept instance rule for defining a property of a concept instance to be filled in each slot provided for the concept in correspondence with a slot type of the slot, and a surface rule for defining an order of a word representing the concept instance to be filled in each slot and a

grammar of the word representing the concept. In addition, the apparatus comprises input concept instance generating means for generating a plurality of input concept instances corresponding to the plurality of words sorted in the input time order by the sorting means, by referring to the knowledge stored in the knowledge base. The apparatus also comprises concept instance unifying means for unifying the plurality of input concept instances by filling a slot of one of the input concept instances with another one of the input concept instances having a concept type which matches with the property of the concept instance for the slot defined by the concept instance rule and the input order of the corresponding word satisfies an order of a word defined by the surface rule.

Thus, among its many features, the invention of Claim 1 provides for (i) storing knowledge of each concept which includes a word representing the concept, a concept type of the concept, a concept instance rule for defining a property of a concept instance to be filled in each slot provided for the concept in correspondence with a slot type of the slot, and a surface rule for defining an order of a word representing the concept instance to be filled in each slot and a grammar of the word representing the concept, (ii) for generating a plurality of input concept instances corresponding to the plurality of words sorted in the input time order, by referring to the stored knowledge, and (iii) unifying the plurality of input concept instances by filling a slot of one of the input concept instances with another one of the input concept instances having a concept type which matches with the property of the concept instance for the slot defined by the concept instance rule and the input order of the corresponding word satisfies an order of a word defined by the surface rule.

The applied references of Namba and Jackson are not seen to disclose or suggest at least these features.

As understood by Applicants, Namba discloses receiving input from a voice recognition section 1, a touch-panel section 2, a keyboard section 3. Namba also collects plural pieces of recognition information having close time stamp with each other as a semantic analyzing section. In addition, Namba searches a semantic analyzing section which coincides with the input semantic analyzing section, from among a semantic analysis unit storage area 20. See Namba, column 2, lines 10 to 32; column 6, lines 51 to 58; and column 16, line 51 to column 17, line 8.

However, Namba is not seen to disclose or suggest foregoing features (i) to (iii).

In addition, Jackson has been reviewed and is not seen to compensate for the deficiencies of Namba.

Allowance of Claim 1 is therefore respectfully requested.

Claims 23 and 45

Independent Claim 23 as amended is directed to an information processing method performed in an apparatus. The method comprises an input step, of inputting different types of information by a plurality of input units, a conversion step, of converting information input from any of the plurality of input units into a word representing the information, and a storing step, of storing a plurality of words converted in the conversion step with an input time thereof in a storage unit. The method also comprises a sorting step, of sorting the plurality of words stored in the storage unit in an order of the input time, and an input concept instance generating step, of generating a plurality of input concept instances corresponding to the plurality of words sorted in the input time order in the sorting step, by referring to knowledge stored in a knowledge base, which stores knowledge of each concept which includes a word representing the concept, a concept type

of the concept, a concept instance rule for defining a property of a concept instance to be filled in each slot provided for the concept in correspondence with a slot type of the slot, and a surface rule for defining an order of a word representing the concept instance to be filled in each slot and a grammar of the word representing the concept. In addition, the method comprises a concept instance unifying step, of unifying the plurality of input concept instances by filling a slot of one of the input concept instances with another one of the input concept instances having a concept type which matches with the property of the concept instance for the slot defined by the concept instance rule and the input order of the corresponding word satisfies an order of a word defined by the surface rule.

Independent Claim 45 as amended is directed to a computer-readable storage medium which is seen to generally correspond with Claim 23.

Thus, among its many features, the invention of Claims 23 and 45 provides for (i) generating a plurality of input concept instances corresponding to the plurality of words sorted in the input time order, by referring to knowledge stored in a knowledge base, which stores knowledge of each concept which includes a word representing the concept, a concept type of the concept, a concept instance rule for defining a property of a concept instance to be filled in each slot provided for the concept in correspondence with a slot type of the slot, and a surface rule for defining an order of a word representing the concept instance to be filled in each slot and a grammar of the word representing the concept, and (ii) unifying the plurality of input concept instances by filling a slot of one of the input concept instances with another one of the input concept instances having a concept type which matches with the property of the concept instance for the slot defined by the concept instance rule and the input order of the corresponding word satisfies an order of a word defined by the surface rule.

The applied references of Namba and Jackson are not seen to disclose or suggest at least these features, for reasons similar to those discussed above.

Allowance of Claims 23 and 45 is therefore respectfully requested.


Accordingly, based on the foregoing amendments and remarks, independent Claims 1, 23 and 45 as amended are believed to be allowable over the applied references.

The other claims in the application are each dependent from the independent claims and are believed to be allowable over the applied references for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

No other matters being raised, it is believed that the entire application is fully in condition for allowance, and such action is courteously solicited.

Applicants' undersigned attorney may be reached in our Costa Mesa, California office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



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